CLAIMS:

1. Two-stage electronic ballast for driving a gas discharge lamp, specifically a HID lamp, more specifically a metal halide lamp; the ballast comprising:

- a half-bridge commutating forward stage comprising a series arrangement of a first buffer capacitor and a second buffer capacitor connected between two bridge input terminals; and
- a double flyback converter stage comprising an inductive energy storage buffer having at least one input circuit suitable for receiving a rectified AC mains input voltage, the buffer further having at least two output circuits, each output circuit being coupled to a respective buffer capacitor of said half-bridge commutating forward stage for individually charging said buffer capacitors.

2. Two-stage electronic ballast according to claim 1, wherein said half-bridge commutating forward stage further comprises:

- a series arrangement of a first controllable switch and a second controllable switch connected between said two bridge input terminals;
- a series arrangement of a lamp output and a current control inductor connected between on the one hand a first node between said two buffer capacitors, and on the other hand a second node between said two controllable switches;
- a lamp current control unit operatively coupled to said two controllable switches, the lamp current control unit being adapted to control the operative state of each controllable switch such that, in a first half period, the first switch is maintained in an open condition (non-conductive) while the second switch is switched open and closed at a relatively high frequency, whereas in a second half period, the second switch is maintained in an open condition (non-conductive) while the first switch is switched open and closed at a relatively high frequency.

3. Two-stage electronic ballast according to claim 1 or 2, wherein the input circuit of the inductive energy storage buffer comprises a first winding and a third controllable switch connected in series with the first winding;

wherein the first output circuit of the inductive energy storage buffer comprises a second winding connected in series to said first winding, the second winding having a free end and a second end connected to said first winding, the first output circuit further comprising a first diode coupled between said free end of the second winding and the first bridge input terminal, and a common conductor coupled between said second end of the second winding and said first node between said two buffer capacitors; and
wherein the second output circuit of the inductive energy storage buffer comprises said first winding, said first winding having a free end and a second end connected to said second winding, the second output circuit further comprising said common conductor and a second diode coupled between said free end of the first winding and the second bridge input terminal.

4. Two-stage electronic ballast according to claim 1 or 2, wherein the input circuit of the inductive energy storage buffer comprises a first winding and a third controllable switch connected in series with said first winding;
wherein the first output circuit of the inductive energy storage buffer comprises a second winding inductively coupled to said first winding, the second winding having a first end coupled to the first bridge input terminal and a second end coupled to said node between said two buffer capacitors, the first output circuit further comprising a first diode coupled in series to said second winding; and
wherein the second output circuit of the inductive energy storage buffer comprises a third winding inductively coupled to said first winding, the third winding having a first end coupled to the second bridge input terminal and a second end coupled to said node between said two buffer capacitors, the second output circuit further comprising a second diode coupled in series to said third winding.

5. Two-stage electronic ballast according to claim 4, wherein said first diode is connected between said second winding first end and said first bridge input terminal.

6. Two-stage electronic ballast according to claim 4, wherein said first diode is connected between said second winding second end and said node.

7. Two-stage electronic ballast according to any of claims 4-6, wherein said second diode is connected between said third winding first end and said second bridge input terminal.

8. Two-stage electronic ballast according to any of claims 4-6, wherein said second diode is connected between said third winding second end and said node.

9. Two-stage electronic ballast according to any of the previous claims, wherein the inductive energy storage buffer further comprises an output voltage control unit operatively coupled to said third controllable switch, the output voltage control unit being adapted to control the operative state of said third controllable switch such that the output voltage of the flyback converter stage, as measured between the two bridge input terminals, remains substantially at a predetermined constant value.

10. Two-stage electronic ballast according to claim 8 or 9, wherein the output voltage control unit comprises a voltage sensor input coupled to receive a measuring signal representing the output voltage of the flyback converter stage, and wherein the output voltage control unit is adapted to generate a switch actuating signal such that the third controllable switch is switched open and closed at a predetermined operating frequency, the output voltage control unit being responsive to said measuring signal to adapt the duty cycle of said switch actuating signal in order to maintain the output voltage at a predetermined level.

11. Two-stage electronic ballast according to claim 10, wherein said measuring signal represents the voltage over said series arrangement of first buffer capacitor and second buffer capacitor.

12. Two-stage electronic ballast according to any of claims 2-11, wherein said lamp current control unit is responsive to a command signal to set a duty cycle of said first and second controllable switches at a value which may differ from 50%, such that a lamp current may have a DC component.

13. Light generating assembly comprising a gas discharge lamp, particularly a metal halide lamp, and a two-stage electronic ballast according to any of the previous claims.

14. Light generating assembly according to claim 13, wherein said lamp is of a type which has varying light generating properties depending on the DC current level.